

LISTING OF CLAIMS:

The following listing of claims replaces all previous versions and listings of the claims.

Please add new claims 5-8.

1. (Currently amended) A torque sensor comprising:

a first shaft and a second shaft connected coaxially;

a torsion bar converting a torque applied between said first shaft and said second shaft into a torsion displacement;

a multipolar magnet fixed to said first shaft or to one end of said torsion bar;

one set of magnetic yokes fixed to said second shaft or to the other end of said torsion bar and disposed in a magnetic field generated by said multipolar magnet, said magnetic yokes being opposed to each other via an air gap in an axial direction; and

a magnetic sensor for detecting the density of magnetic flux generated in said air gap,

wherein a non-magnetic spacer is disposed between said magnetic yokes as a means for positioning said one set of magnetic yokes, and

said spacer and said one set of magnetic yokes are integrated by resin molding,

said spacer has a single annular body,

said one set of magnetic yokes are assembled to both end surfaces of said single annular body of the spacer, and

said spacer has at least one positioning portion for positioning said one set of magnetic yokes.

2. (Original) The torque sensor in accordance with claim 1, wherein

said magnetic yokes have a plurality of claw poles disposed in a circumferential direction at equal intervals,

said spacer retains said one set of magnetic yokes with a predetermined gap in the axial direction and has at least one projection provided at each axial end surface thereof, and said projection is disposed between the claw poles neighboring with each other in said circumferential direction of said magnetic yoke, thereby positioning said one set of magnetic yokes in the circumferential direction.

3. (Original) The torque sensor in accordance with claim 1, wherein said magnetic sensor is constituted by two separated sensors which are disposed in parallel with each other with respect to a direction of magnetic flux and have magnetism detecting directions mutually opposed by an angular difference of 180°.

4. (Currently amended) A torque sensor comprising:

a first shaft and a second shaft connected coaxially;

a torsion bar converting a torque applied between said first shaft and said second shaft into a torsion displacement;

a multipolar magnet fixed to said first shaft or to one end of said torsion bar;

one set of magnetic yokes fixed to said second shaft or to the other end of said torsion bar and disposed in a magnetic field generated by said multipolar magnet, said magnetic yokes being opposed to each other via an air gap in an axial direction; and

a magnetic sensor for detecting the density of magnetic flux generated in said air gap,
wherein a non-magnetic spacer is provided to retain said one set of magnetic yokes with a predetermined gap in the axial direction,

said spaced has a single annular body,

said one set of magnetic yokes as assembled to axial end surfaces of said single annular body of the spacer,

said spacer has at least one projection provided on at each at least one of said axial end surface surfaces thereof of said single annular body of the spacer,

said projection is disposed between claw poles neighboring with each other in the circumferential direction of said magnetic yoke, and

said spacer and said one set of magnetic yokes are integrated by resin molding.

5. (New) The torque sensor in accordance with claim 1, wherein said spacer has at least one projection on each axial end surface of said single annular body of the spacer.

6. (New) The torque sensor in accordance with claim 1, wherein said spacer has two projections on each axial end surface of said single annular body of the spacer.

7. (New) The torque sensor in accordance with claim 1, further comprising a collar fixed to a molding resin integrating said spacer and said one set of magnetic yokes, and said one set of magnetic yokes are fixed to said first shaft or to said second shaft via said collar.

8. (New) The torque sensor in accordance with claim 1, wherein said magnetic sensor is arranged by two separated sensors using a common power source terminal and a common earth terminal.